

1. Tasty Mornings is trying a variety of packaging dimensions for their cereal. They wish to predict the net weight of the product based on the amount of cardboard used for the package. Below is a list of current packages with their corresponding weights.

Packaging (in ²)	Weight (grams)	Packaging (in ²)	Weight (grams)
47	28	125	566
138	850	69	85
100	283	88	198
111	425		

Find a linear function for the above data. Let packaging be represented on the x -axis and weight on the y -axis. Show all of your work clearly.

2. For the parent graph $f(x) = |x|$, sketch the original function following transformations on the same set of axes.

a. $-2f(x-3)$

b. $\frac{1}{2}f(x+1)-5$

c. $\frac{2}{3}f(x-2)+2$

3. Given the following function, state the equation of the parent graph, sketch the graph, and describe the transformation completely.

4. Given $f(x) = 2x^2 + 1$ and $g(x) = \sqrt{2x-3}$, find and simplify the following function operations.

a. $f(x-2)$

b. $f(g(x))$

c. $g(f(x))$

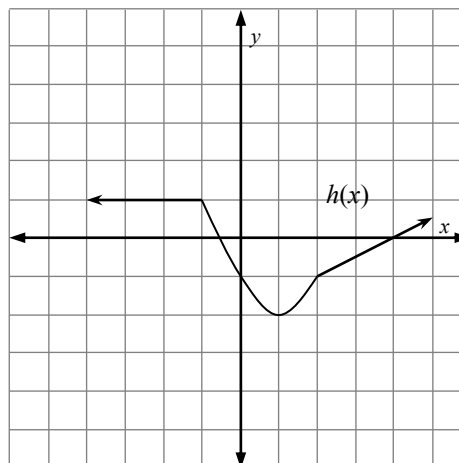
5. Find the inverse of $f(x) = 4(2x-3)^{1/3}$ and simplify completely

6. Given the graph of $h(x)$, sketch the following transformations.

a. $h(x+3)-2$

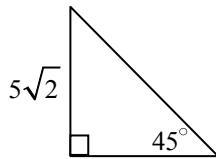
b. $\frac{1}{2}h(x)+1$

c. $-h(x)+4$

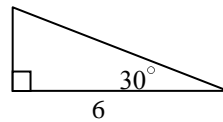


7. Write the equation of the line that passes through the midpoint of, and is perpendicular to, a segment with endpoints $(-3, 4)$ and $(4, -1)$.
8. Find the distance between the point $(-2, 4)$ and the midpoint of the segment with endpoints $L(3, -5)$ and $N(-11, 1)$.
9. Given $\triangle GEO$, where $\angle G = 32^\circ$, $\angle E = 81^\circ$, and $GE = 12$ feet.
- Draw a diagram roughly to scale.
 - Solve the triangle completely.
 - Calculate the area of $\triangle GEO$.
10. Find the length of the missing leg and hypotenuse of the special right triangles below.

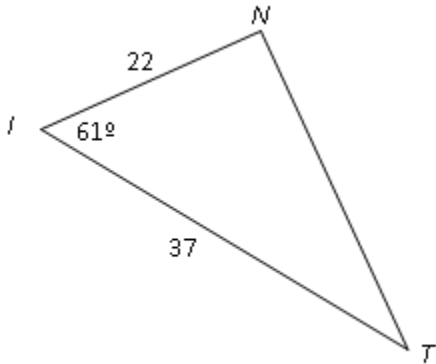
a.



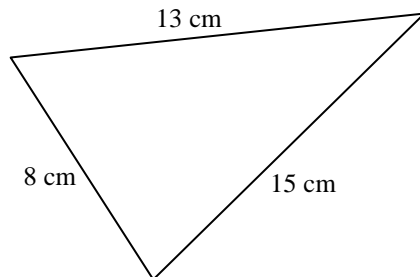
b.



11. Solve the triangle



12. Find the area of the triangle below. Show all of your steps.



13. Convert the following angle measures from degrees to radians or radians to degrees.

a. 75°

b. $\frac{7\pi}{12}$ radians

14. Convert the following angle measures from degrees to radians or radians to degrees.

a. 3 radians

b. $30\pi^\circ$

15. Find the angle between 0 and 2π that is coterminal with the given angle. Draw a picture of that angle in the unit circle.

a. $-\frac{\pi}{3}$

b. $\frac{9\pi}{4}$

16. Find the angle between 0 and 2π that is coterminal with the given angle. Draw a picture of that angle in the unit circle.

a. $\frac{15\pi}{6}$

b. $-\frac{4\pi}{3}$